

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Burlington

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Tel: (802)660-1990

TestAmerica Job ID: 200-45256-1

TestAmerica Sample Delivery Group: 200-45256-1

Client Project/Site: Newsvt WQ

For:

Waite-Heindel Environmental Management

7 Kilburn Street

Suite 301

Burlington, Vermont 05401

Attn: Mr. Miles Waite



Authorized for release by:

9/28/2018 11:15:17 AM

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: Waite-Heindel Environmental Management
Project/Site: Newsvt WQ

TestAmerica Job ID: 200-45256-1
SDG: 200-45256-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: Waite-Heindel Environmental Management
Project/Site: Newsvt WQ

TestAmerica Job ID: 200-45256-1
SDG: 200-45256-1

Job ID: 200-45256-1

Laboratory: TestAmerica Burlington

Narrative

CASE NARRATIVE

Client: Waite-Heindel Environmental Management

Project: Newsvt WQ

Report Number: 200-45256-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 09/14/2018; the samples arrived in good condition, properly preserved and on ice. The temperatures of the three coolers at receipt time were 2.2° C, 4.0° C and 4.0° C.

PERFLUORINATED HYDROCARBONS

Samples TRIP BLANK, FIELD BLANK, EQUIPMENT BLANK, BRW-2R and P2RR were analyzed for Perfluorinated Hydrocarbons in accordance with TAL SOP WS-LC-0025. The samples were prepared on 09/25/2018 and analyzed on 09/26/2018.

Samples P2RR[2X] and P2RR[5X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

Due to sample matrix effect on the chromatography of the extract, a dilution was required for the following sample, resulting in the ISTD response being below acceptance criteria due to its dilution: P2RR (200-45256-5).

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: Waite-Heindel Environmental Management
Project/Site: Newsvt WQ

TestAmerica Job ID: 200-45256-1
SDG: 200-45256-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 200-45256-1

No Detections.

Client Sample ID: FIELD BLANK

Lab Sample ID: 200-45256-2

No Detections.

Client Sample ID: EQUIPMENT BLANK

Lab Sample ID: 200-45256-3

No Detections.

Client Sample ID: BRW-2R

Lab Sample ID: 200-45256-4

No Detections.

Client Sample ID: P2RR

Lab Sample ID: 200-45256-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluoroheptanoic acid (PFHpA)	37		8.9	8.9	ng/L	5		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	49		8.9	8.9	ng/L	5		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	14		3.6	3.6	ng/L	2		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	21		8.9	8.9	ng/L	5		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	78		3.6	3.6	ng/L	2		537 (modified)	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Burlington

Client Sample Results

Client: Waite-Heindel Environmental Management
Project/Site: Newsvt WQ

TestAmerica Job ID: 200-45256-1
SDG: 200-45256-1

Client Sample ID: TRIP BLANK

Date Collected: 09/13/18 00:00

Date Received: 09/14/18 10:45

Lab Sample ID: 200-45256-1

Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoroheptanoic acid (PFHpA)	ND		1.9	1.9	ng/L		09/25/18 08:26	09/26/18 02:58	1
Perfluorooctanoic acid (PFOA)	ND		1.9	1.9	ng/L		09/25/18 08:26	09/26/18 02:58	1
Perfluorononanoic acid (PFNA)	ND		1.9	1.9	ng/L		09/25/18 08:26	09/26/18 02:58	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.9	1.9	ng/L		09/25/18 08:26	09/26/18 02:58	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.9	1.9	ng/L		09/25/18 08:26	09/26/18 02:58	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.9	1.9	ng/L		09/25/18 08:26	09/26/18 02:58	1
Perfluorohexanoic acid (PFHxA)	ND		1.9	1.9	ng/L		09/25/18 08:26	09/26/18 02:58	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.9	ng/L		09/25/18 08:26	09/26/18 02:58	1
Perfluorodecanoic acid (PFDA)	ND		1.9	1.9	ng/L		09/25/18 08:26	09/26/18 02:58	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	1.9	ng/L		09/25/18 08:26	09/26/18 02:58	1
Perfluorotridecanoic Acid (PFTriA)	ND		1.9	1.9	ng/L		09/25/18 08:26	09/26/18 02:58	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	1.9	ng/L		09/25/18 08:26	09/26/18 02:58	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
18O2 PFHxS	65		25 - 150				09/25/18 08:26	09/26/18 02:58	1
13C4-PFHxA	65		25 - 150				09/25/18 08:26	09/26/18 02:58	1
13C4 PFOA	72		25 - 150				09/25/18 08:26	09/26/18 02:58	1
13C4 PFOS	70		25 - 150				09/25/18 08:26	09/26/18 02:58	1
13C5 PFNA	71		25 - 150				09/25/18 08:26	09/26/18 02:58	1
13C2 PFHxA	63		25 - 150				09/25/18 08:26	09/26/18 02:58	1
13C2 PFDA	81		25 - 150				09/25/18 08:26	09/26/18 02:58	1
13C2 PFUnA	79		25 - 150				09/25/18 08:26	09/26/18 02:58	1
13C2 PFDoA	64		25 - 150				09/25/18 08:26	09/26/18 02:58	1
13C2-PFTeDA	64		25 - 150				09/25/18 08:26	09/26/18 02:58	1
13C3-PFBS	54		25 - 150				09/25/18 08:26	09/26/18 02:58	1

Client Sample Results

Client: Waite-Heindel Environmental Management
Project/Site: Newsvt WQ

TestAmerica Job ID: 200-45256-1
SDG: 200-45256-1

Client Sample ID: FIELD BLANK

Date Collected: 09/13/18 15:03

Date Received: 09/14/18 10:45

Lab Sample ID: 200-45256-2

Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoroheptanoic acid (PFHpA)	ND		1.8	1.8	ng/L		09/25/18 08:26	09/26/18 03:14	1
Perfluorooctanoic acid (PFOA)	ND		1.8	1.8	ng/L		09/25/18 08:26	09/26/18 03:14	1
Perfluorononanoic acid (PFNA)	ND		1.8	1.8	ng/L		09/25/18 08:26	09/26/18 03:14	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.8	1.8	ng/L		09/25/18 08:26	09/26/18 03:14	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.8	1.8	ng/L		09/25/18 08:26	09/26/18 03:14	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.8	1.8	ng/L		09/25/18 08:26	09/26/18 03:14	1
Perfluorohexanoic acid (PFHxA)	ND		1.8	1.8	ng/L		09/25/18 08:26	09/26/18 03:14	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	1.8	ng/L		09/25/18 08:26	09/26/18 03:14	1
Perfluorodecanoic acid (PFDA)	ND		1.8	1.8	ng/L		09/25/18 08:26	09/26/18 03:14	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	1.8	ng/L		09/25/18 08:26	09/26/18 03:14	1
Perfluorotridecanoic Acid (PFTriA)	ND		1.8	1.8	ng/L		09/25/18 08:26	09/26/18 03:14	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	1.8	ng/L		09/25/18 08:26	09/26/18 03:14	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
18O2 PFHxS	70		25 - 150				09/25/18 08:26	09/26/18 03:14	1
13C4-PFHxA	67		25 - 150				09/25/18 08:26	09/26/18 03:14	1
13C4 PFOA	74		25 - 150				09/25/18 08:26	09/26/18 03:14	1
13C4 PFOS	70		25 - 150				09/25/18 08:26	09/26/18 03:14	1
13C5 PFNA	72		25 - 150				09/25/18 08:26	09/26/18 03:14	1
13C2 PFHxA	68		25 - 150				09/25/18 08:26	09/26/18 03:14	1
13C2 PFDA	85		25 - 150				09/25/18 08:26	09/26/18 03:14	1
13C2 PFUnA	81		25 - 150				09/25/18 08:26	09/26/18 03:14	1
13C2 PFDoA	70		25 - 150				09/25/18 08:26	09/26/18 03:14	1
13C2-PFTeDA	70		25 - 150				09/25/18 08:26	09/26/18 03:14	1
13C3-PFBS	59		25 - 150				09/25/18 08:26	09/26/18 03:14	1

Client Sample Results

Client: Waite-Heindel Environmental Management
Project/Site: Newsvt WQ

TestAmerica Job ID: 200-45256-1
SDG: 200-45256-1

Client Sample ID: EQUIPMENT BLANK

Date Collected: 09/13/18 14:55

Date Received: 09/14/18 10:45

Lab Sample ID: 200-45256-3

Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoroheptanoic acid (PFHpA)	ND		1.9	1.9	ng/L		09/25/18 08:26	09/26/18 03:30	1
Perfluorooctanoic acid (PFOA)	ND		1.9	1.9	ng/L		09/25/18 08:26	09/26/18 03:30	1
Perfluorononanoic acid (PFNA)	ND		1.9	1.9	ng/L		09/25/18 08:26	09/26/18 03:30	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.9	1.9	ng/L		09/25/18 08:26	09/26/18 03:30	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.9	1.9	ng/L		09/25/18 08:26	09/26/18 03:30	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.9	1.9	ng/L		09/25/18 08:26	09/26/18 03:30	1
Perfluorohexanoic acid (PFHxA)	ND		1.9	1.9	ng/L		09/25/18 08:26	09/26/18 03:30	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.9	ng/L		09/25/18 08:26	09/26/18 03:30	1
Perfluorodecanoic acid (PFDA)	ND		1.9	1.9	ng/L		09/25/18 08:26	09/26/18 03:30	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	1.9	ng/L		09/25/18 08:26	09/26/18 03:30	1
Perfluorotridecanoic Acid (PFTriA)	ND		1.9	1.9	ng/L		09/25/18 08:26	09/26/18 03:30	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	1.9	ng/L		09/25/18 08:26	09/26/18 03:30	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
18O2 PFHxS	71		25 - 150				09/25/18 08:26	09/26/18 03:30	1
13C4-PFHxA	70		25 - 150				09/25/18 08:26	09/26/18 03:30	1
13C4 PFOA	75		25 - 150				09/25/18 08:26	09/26/18 03:30	1
13C4 PFOS	74		25 - 150				09/25/18 08:26	09/26/18 03:30	1
13C5 PFNA	73		25 - 150				09/25/18 08:26	09/26/18 03:30	1
13C2 PFHxA	72		25 - 150				09/25/18 08:26	09/26/18 03:30	1
13C2 PFDA	82		25 - 150				09/25/18 08:26	09/26/18 03:30	1
13C2 PFUnA	89		25 - 150				09/25/18 08:26	09/26/18 03:30	1
13C2 PFDoA	73		25 - 150				09/25/18 08:26	09/26/18 03:30	1
13C2-PFTeDA	67		25 - 150				09/25/18 08:26	09/26/18 03:30	1
13C3-PFBS	62		25 - 150				09/25/18 08:26	09/26/18 03:30	1

Client Sample Results

Client: Waite-Heindel Environmental Management
Project/Site: Newsvt WQ

TestAmerica Job ID: 200-45256-1
SDG: 200-45256-1

Client Sample ID: BRW-2R

Date Collected: 09/13/18 12:35

Date Received: 09/14/18 10:45

Lab Sample ID: 200-45256-4

Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoroheptanoic acid (PFHpA)	ND		1.7	1.7	ng/L		09/25/18 08:26	09/26/18 03:46	1
Perfluorooctanoic acid (PFOA)	ND		1.7	1.7	ng/L		09/25/18 08:26	09/26/18 03:46	1
Perfluorononanoic acid (PFNA)	ND		1.7	1.7	ng/L		09/25/18 08:26	09/26/18 03:46	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.7	1.7	ng/L		09/25/18 08:26	09/26/18 03:46	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.7	1.7	ng/L		09/25/18 08:26	09/26/18 03:46	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.7	1.7	ng/L		09/25/18 08:26	09/26/18 03:46	1
Perfluorohexanoic acid (PFHxA)	ND		1.7	1.7	ng/L		09/25/18 08:26	09/26/18 03:46	1
Perfluoroundecanoic acid (PFUnA)	ND		1.7	1.7	ng/L		09/25/18 08:26	09/26/18 03:46	1
Perfluorodecanoic acid (PFDA)	ND		1.7	1.7	ng/L		09/25/18 08:26	09/26/18 03:46	1
Perfluorododecanoic acid (PFDoA)	ND		1.7	1.7	ng/L		09/25/18 08:26	09/26/18 03:46	1
Perfluorotridecanoic Acid (PFTriA)	ND		1.7	1.7	ng/L		09/25/18 08:26	09/26/18 03:46	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.7	1.7	ng/L		09/25/18 08:26	09/26/18 03:46	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
18O2 PFHxS	71		25 - 150				09/25/18 08:26	09/26/18 03:46	1
13C4-PFHxA	65		25 - 150				09/25/18 08:26	09/26/18 03:46	1
13C4 PFOA	74		25 - 150				09/25/18 08:26	09/26/18 03:46	1
13C4 PFOS	70		25 - 150				09/25/18 08:26	09/26/18 03:46	1
13C5 PFNA	77		25 - 150				09/25/18 08:26	09/26/18 03:46	1
13C2 PFHxA	58		25 - 150				09/25/18 08:26	09/26/18 03:46	1
13C2 PFDA	74		25 - 150				09/25/18 08:26	09/26/18 03:46	1
13C2 PFUnA	77		25 - 150				09/25/18 08:26	09/26/18 03:46	1
13C2 PFDoA	61		25 - 150				09/25/18 08:26	09/26/18 03:46	1
13C2-PFTeDA	73		25 - 150				09/25/18 08:26	09/26/18 03:46	1
13C3-PFBS	54		25 - 150				09/25/18 08:26	09/26/18 03:46	1

Client Sample Results

Client: Waite-Heindel Environmental Management
Project/Site: Newsvt WQ

TestAmerica Job ID: 200-45256-1
SDG: 200-45256-1

Client Sample ID: P2RR
Date Collected: 09/13/18 14:24
Date Received: 09/14/18 10:45

Lab Sample ID: 200-45256-5
Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoroheptanoic acid (PFHpA)	37		8.9	8.9	ng/L		09/25/18 08:26	09/26/18 11:17	5
Perfluorooctanoic acid (PFOA)	49		8.9	8.9	ng/L		09/25/18 08:26	09/26/18 11:17	5
Perfluorononanoic acid (PFNA)	ND		3.6	3.6	ng/L		09/25/18 08:26	09/26/18 11:33	2
Perfluorobutanesulfonic acid (PFBS)	14		3.6	3.6	ng/L		09/25/18 08:26	09/26/18 11:33	2
Perfluorohexanesulfonic acid (PFHxS)	21		8.9	8.9	ng/L		09/25/18 08:26	09/26/18 11:17	5
Perfluorooctanesulfonic acid (PFOS)	ND		3.6	3.6	ng/L		09/25/18 08:26	09/26/18 11:33	2
Perfluorohexanoic acid (PFHxA)	78		3.6	3.6	ng/L		09/25/18 08:26	09/26/18 11:33	2
Perfluoroundecanoic acid (PFUnA)	ND		3.6	3.6	ng/L		09/25/18 08:26	09/26/18 11:33	2
Perfluorodecanoic acid (PFDA)	ND		3.6	3.6	ng/L		09/25/18 08:26	09/26/18 11:33	2
Perfluorododecanoic acid (PFDoA)	ND		3.6	3.6	ng/L		09/25/18 08:26	09/26/18 11:33	2
Perfluorotridecanoic Acid (PFTriA)	ND		3.6	3.6	ng/L		09/25/18 08:26	09/26/18 11:33	2
Perfluorotetradecanoic acid (PFTeA)	ND		3.6	3.6	ng/L		09/25/18 08:26	09/26/18 11:33	2
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
18O2 PFHxS	55		25 - 150				09/25/18 08:26	09/26/18 11:17	5
13C4-PFHxA	42		25 - 150				09/25/18 08:26	09/26/18 11:17	5
13C4 PFOA	65		25 - 150				09/25/18 08:26	09/26/18 11:17	5
13C4 PFOS	86		25 - 150				09/25/18 08:26	09/26/18 11:33	2
13C5 PFNA	95		25 - 150				09/25/18 08:26	09/26/18 11:33	2
13C2 PFHxA	31		25 - 150				09/25/18 08:26	09/26/18 11:33	2
13C2 PFDA	108		25 - 150				09/25/18 08:26	09/26/18 11:33	2
13C2 PFUnA	103		25 - 150				09/25/18 08:26	09/26/18 11:33	2
13C2 PFDoA	89		25 - 150				09/25/18 08:26	09/26/18 11:33	2
13C2-PFTeDA	87		25 - 150				09/25/18 08:26	09/26/18 11:33	2
13C3-PFBS	42		25 - 150				09/25/18 08:26	09/26/18 11:33	2

Isotope Dilution Summary

Client: Waite-Heindel Environmental Management
Project/Site: Newsvt WQ

TestAmerica Job ID: 200-45256-1
SDG: 200-45256-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFHxS (25-150)	PFHpA (25-150)	PFOA (25-150)	PFOS (25-150)	PFNA (25-150)	PFHxA (25-150)	PFDA (25-150)	PFUnA (25-150)
200-45256-1	TRIP BLANK	65	65	72	70	71	63	81	79
200-45256-2	FIELD BLANK	70	67	74	70	72	68	85	81
200-45256-3	EQUIPMENT BLANK	71	70	75	74	73	72	82	89
200-45256-4	BRW-2R	71	65	74	70	77	58	74	77
200-45256-5	P2RR	55	42	65					
200-45256-5	P2RR				86	95	31	108	103
LCS 200-134454/2-A	Lab Control Sample	67	71	73	72	73	71	79	81
LCSD 200-134454/3-A	Lab Control Sample Dup	70	66	70	68	70	70	75	82
MB 200-134454/1-A	Method Blank	71	70	74	71	72	70	83	87

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFDaA (25-150)	PFTDA (25-150)	3C3-PFBs (25-150)
200-45256-1	TRIP BLANK	64	64	54
200-45256-2	FIELD BLANK	70	70	59
200-45256-3	EQUIPMENT BLANK	73	67	62
200-45256-4	BRW-2R	61	73	54
200-45256-5	P2RR			
200-45256-5	P2RR	89	87	42
LCS 200-134454/2-A	Lab Control Sample	70	72	64
LCSD 200-134454/3-A	Lab Control Sample Dup	73	69	61
MB 200-134454/1-A	Method Blank	70	69	57

Surrogate Legend

PFHxS = 18O2 PFHxS
PFHpA = 13C4-PFHpA
PFOA = 13C4 PFOA
PFOS = 13C4 PFOS
PFNA = 13C5 PFNA
PFHxA = 13C2 PFHxA
PFDA = 13C2 PFDA
PFUnA = 13C2 PFUnA
PFDaA = 13C2 PFDaA
PFTDA = 13C2-PFTeDA
13C3-PFBS = 13C3-PFBS

QC Sample Results

Client: Waite-Heindel Environmental Management
Project/Site: Newsvt WQ

TestAmerica Job ID: 200-45256-1
SDG: 200-45256-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Lab Sample ID: MB 200-134454/1-A

Matrix: Water

Analysis Batch: 134483

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 134454

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoroheptanoic acid (PFHpA)	ND		2.0	2.0	ng/L		09/25/18 08:26	09/26/18 01:39	1
Perfluorooctanoic acid (PFOA)	ND		2.0	2.0	ng/L		09/25/18 08:26	09/26/18 01:39	1
Perfluorononanoic acid (PFNA)	ND		2.0	2.0	ng/L		09/25/18 08:26	09/26/18 01:39	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	2.0	ng/L		09/25/18 08:26	09/26/18 01:39	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	2.0	ng/L		09/25/18 08:26	09/26/18 01:39	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	2.0	ng/L		09/25/18 08:26	09/26/18 01:39	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	2.0	ng/L		09/25/18 08:26	09/26/18 01:39	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	2.0	ng/L		09/25/18 08:26	09/26/18 01:39	1
Perfluorodecanoic acid (PFDA)	ND		2.0	2.0	ng/L		09/25/18 08:26	09/26/18 01:39	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	2.0	ng/L		09/25/18 08:26	09/26/18 01:39	1
Perfluorotridecanoic Acid (PFTriA)	ND		2.0	2.0	ng/L		09/25/18 08:26	09/26/18 01:39	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	2.0	ng/L		09/25/18 08:26	09/26/18 01:39	1

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
18O2 PFHxS	71		25 - 150	09/25/18 08:26	09/26/18 01:39	1
13C4-PFHxA	70		25 - 150	09/25/18 08:26	09/26/18 01:39	1
13C4 PFOA	74		25 - 150	09/25/18 08:26	09/26/18 01:39	1
13C4 PFOS	71		25 - 150	09/25/18 08:26	09/26/18 01:39	1
13C5 PFNA	72		25 - 150	09/25/18 08:26	09/26/18 01:39	1
13C2 PFHxA	70		25 - 150	09/25/18 08:26	09/26/18 01:39	1
13C2 PFDA	83		25 - 150	09/25/18 08:26	09/26/18 01:39	1
13C2 PFUnA	87		25 - 150	09/25/18 08:26	09/26/18 01:39	1
13C2 PFDoA	70		25 - 150	09/25/18 08:26	09/26/18 01:39	1
13C2-PFTeDA	69		25 - 150	09/25/18 08:26	09/26/18 01:39	1
13C3-PFBS	57		25 - 150	09/25/18 08:26	09/26/18 01:39	1

Lab Sample ID: LCS 200-134454/2-A

Matrix: Water

Analysis Batch: 134483

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 134454

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluoroheptanoic acid (PFHpA)	40.0	49.1		ng/L		123	50 - 150
Perfluorooctanoic acid (PFOA)	40.0	49.8		ng/L		125	50 - 150
Perfluorononanoic acid (PFNA)	40.0	48.7		ng/L		122	50 - 150
Perfluorobutanesulfonic acid (PFBS)	40.0	52.6		ng/L		132	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	40.0	53.6		ng/L		134	50 - 150
Perfluorooctanesulfonic acid (PFOS)	40.0	47.5		ng/L		119	50 - 150
Perfluorohexanoic acid (PFHxA)	40.0	51.8		ng/L		129	50 - 150
Perfluoroundecanoic acid (PFUnA)	40.0	53.3		ng/L		133	50 - 150
Perfluorodecanoic acid (PFDA)	40.0	47.5		ng/L		119	50 - 150
Perfluorododecanoic acid (PFDoA)	40.0	49.4		ng/L		124	50 - 150
Perfluorotridecanoic Acid (PFTriA)	40.0	48.5		ng/L		121	50 - 150
Perfluorotetradecanoic acid (PFTeA)	40.0	46.0		ng/L		115	50 - 150

TestAmerica Burlington

QC Sample Results

Client: Waite-Heindel Environmental Management
Project/Site: Newsvt WQ

TestAmerica Job ID: 200-45256-1
SDG: 200-45256-1

<i>Isotope Dilution</i>	<i>LCS %Recovery</i>	<i>LCS Qualifier</i>	<i>Limits</i>
18O2 PFHxS	67		25 - 150
13C4-PFHpA	71		25 - 150
13C4 PFOA	73		25 - 150
13C4 PFOS	72		25 - 150
13C5 PFNA	73		25 - 150
13C2 PFHxA	71		25 - 150
13C2 PFDA	79		25 - 150
13C2 PFUnA	81		25 - 150
13C2 PFDoA	70		25 - 150
13C2-PFTeDA	72		25 - 150
13C3-PFBS	64		25 - 150

Lab Sample ID: LCSD 200-134454/3-A
Matrix: Water
Analysis Batch: 134483

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 134454

<i>Analyte</i>	<i>Spike Added</i>	<i>LCSD Result</i>	<i>LCSD Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec. Limits</i>	<i>RPD</i>	<i>RPD Limit</i>
Perfluoroheptanoic acid (PFHpA)	40.0	50.5		ng/L		126	50 - 150	3	30
Perfluorooctanoic acid (PFOA)	40.0	50.3		ng/L		126	50 - 150	1	30
Perfluorononanoic acid (PFNA)	40.0	50.7		ng/L		127	50 - 150	4	30
Perfluorobutanesulfonic acid (PFBS)	40.0	52.4		ng/L		131	50 - 150	0	30
Perfluorohexanesulfonic acid (PFHxS)	40.0	49.1		ng/L		123	50 - 150	9	30
Perfluorooctanesulfonic acid (PFOS)	40.0	53.4		ng/L		134	50 - 150	12	30
Perfluorohexanoic acid (PFHxA)	40.0	50.1		ng/L		125	50 - 150	3	30
Perfluoroundecanoic acid (PFUnA)	40.0	51.8		ng/L		129	50 - 150	3	30
Perfluorodecanoic acid (PFDA)	40.0	50.2		ng/L		125	50 - 150	6	30
Perfluorododecanoic acid (PFDoA)	40.0	47.9		ng/L		120	50 - 150	3	30
Perfluorotridecanoic Acid (PFTriA)	40.0	49.3		ng/L		123	50 - 150	2	30
Perfluorotetradecanoic acid (PFTeA)	40.0	50.1		ng/L		125	50 - 150	9	30

<i>Isotope Dilution</i>	<i>LCSD %Recovery</i>	<i>LCSD Qualifier</i>	<i>Limits</i>
18O2 PFHxS	70		25 - 150
13C4-PFHpA	66		25 - 150
13C4 PFOA	70		25 - 150
13C4 PFOS	68		25 - 150
13C5 PFNA	70		25 - 150
13C2 PFHxA	70		25 - 150
13C2 PFDA	75		25 - 150
13C2 PFUnA	82		25 - 150
13C2 PFDoA	73		25 - 150
13C2-PFTeDA	69		25 - 150
13C3-PFBS	61		25 - 150

QC Association Summary

Client: Waite-Heindel Environmental Management
Project/Site: Newsvt WQ

TestAmerica Job ID: 200-45256-1
SDG: 200-45256-1

LCMS

Prep Batch: 134454

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
200-45256-1	TRIP BLANK	Total/NA	Water	3535	
200-45256-2	FIELD BLANK	Total/NA	Water	3535	
200-45256-3	EQUIPMENT BLANK	Total/NA	Water	3535	
200-45256-4	BRW-2R	Total/NA	Water	3535	
200-45256-5	P2RR	Total/NA	Water	3535	
MB 200-134454/1-A	Method Blank	Total/NA	Water	3535	
LCS 200-134454/2-A	Lab Control Sample	Total/NA	Water	3535	
LCSD 200-134454/3-A	Lab Control Sample Dup	Total/NA	Water	3535	

Analysis Batch: 134483

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
200-45256-1	TRIP BLANK	Total/NA	Water	537 (modified)	134454
200-45256-2	FIELD BLANK	Total/NA	Water	537 (modified)	134454
200-45256-3	EQUIPMENT BLANK	Total/NA	Water	537 (modified)	134454
200-45256-4	BRW-2R	Total/NA	Water	537 (modified)	134454
200-45256-5	P2RR	Total/NA	Water	537 (modified)	134454
200-45256-5	P2RR	Total/NA	Water	537 (modified)	134454
MB 200-134454/1-A	Method Blank	Total/NA	Water	537 (modified)	134454
LCS 200-134454/2-A	Lab Control Sample	Total/NA	Water	537 (modified)	134454
LCSD 200-134454/3-A	Lab Control Sample Dup	Total/NA	Water	537 (modified)	134454

Lab Chronicle

Client: Waite-Heindel Environmental Management
Project/Site: Newsvt WQ

TestAmerica Job ID: 200-45256-1
SDG: 200-45256-1

Client Sample ID: TRIP BLANK

Date Collected: 09/13/18 00:00

Date Received: 09/14/18 10:45

Lab Sample ID: 200-45256-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			134454	09/25/18 08:26	JM1	TAL BUR
Total/NA	Analysis	537 (modified)		1	134483	09/26/18 02:58	BWC	TAL BUR

Client Sample ID: FIELD BLANK

Date Collected: 09/13/18 15:03

Date Received: 09/14/18 10:45

Lab Sample ID: 200-45256-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			134454	09/25/18 08:26	JM1	TAL BUR
Total/NA	Analysis	537 (modified)		1	134483	09/26/18 03:14	BWC	TAL BUR

Client Sample ID: EQUIPMENT BLANK

Date Collected: 09/13/18 14:55

Date Received: 09/14/18 10:45

Lab Sample ID: 200-45256-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			134454	09/25/18 08:26	JM1	TAL BUR
Total/NA	Analysis	537 (modified)		1	134483	09/26/18 03:30	BWC	TAL BUR

Client Sample ID: BRW-2R

Date Collected: 09/13/18 12:35

Date Received: 09/14/18 10:45

Lab Sample ID: 200-45256-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			134454	09/25/18 08:26	JM1	TAL BUR
Total/NA	Analysis	537 (modified)		1	134483	09/26/18 03:46	BWC	TAL BUR

Client Sample ID: P2RR

Date Collected: 09/13/18 14:24

Date Received: 09/14/18 10:45

Lab Sample ID: 200-45256-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			134454	09/25/18 08:26	JM1	TAL BUR
Total/NA	Analysis	537 (modified)		5	134483	09/26/18 11:17	BWC	TAL BUR
Total/NA	Prep	3535			134454	09/25/18 08:26	JM1	TAL BUR
Total/NA	Analysis	537 (modified)		2	134483	09/26/18 11:33	BWC	TAL BUR

Laboratory References:

TAL BUR = TestAmerica Burlington, 30 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990

TestAmerica Burlington

Accreditation/Certification Summary

Client: Waite-Heindel Environmental Management
Project/Site: Newsvt WQ

TestAmerica Job ID: 200-45256-1
SDG: 200-45256-1

Laboratory: TestAmerica Burlington

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
New York	NELAP	2	10391	04-01-19

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
537 (modified)	3535	Water	Perfluorobutanesulfonic acid (PFBS)
537 (modified)	3535	Water	Perfluorodecanoic acid (PFDA)
537 (modified)	3535	Water	Perfluorododecanoic acid (PFDoA)
537 (modified)	3535	Water	Perfluoroheptanoic acid (PFHpA)
537 (modified)	3535	Water	Perfluorohexanesulfonic acid (PFHxS)
537 (modified)	3535	Water	Perfluorohexanoic acid (PFHxA)
537 (modified)	3535	Water	Perfluorononanoic acid (PFNA)
537 (modified)	3535	Water	Perfluorooctanesulfonic acid (PFOS)
537 (modified)	3535	Water	Perfluorooctanoic acid (PFOA)
537 (modified)	3535	Water	Perfluorotetradecanoic acid (PFTeA)
537 (modified)	3535	Water	Perfluorotridecanoic Acid (PFTriA)
537 (modified)	3535	Water	Perfluoroundecanoic acid (PFUnA)

Method Summary

Client: Waite-Heindel Environmental Management
Project/Site: Newsvt WQ

TestAmerica Job ID: 200-45256-1
SDG: 200-45256-1

Method	Method Description	Protocol	Laboratory
537 (modified)	Fluorinated Alkyl Substances	EPA	TAL BUR
3535	Solid-Phase Extraction (SPE)	SW846	TAL BUR

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL BUR = TestAmerica Burlington, 30 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990

Sample Summary

Client: Waite-Heindel Environmental Management
Project/Site: Newsvt WQ

TestAmerica Job ID: 200-45256-1
SDG: 200-45256-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
200-45256-1	TRIP BLANK	Water	09/13/18 00:00	09/14/18 10:45
200-45256-2	FIELD BLANK	Water	09/13/18 15:03	09/14/18 10:45
200-45256-3	EQUIPMENT BLANK	Water	09/13/18 14:55	09/14/18 10:45
200-45256-4	BRW-2R	Water	09/13/18 12:35	09/14/18 10:45
200-45256-5	P2RR	Water	09/13/18 14:24	09/14/18 10:45

[illegible]

Login Sample Receipt Checklist

Client: Waite-Heindel Environmental Management

Job Number: 200-45256-1

SDG Number: 200-45256-1

Login Number: 45256

List Number: 1

Creator: Johnson, Eleanor E

List Source: TestAmerica Burlington

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	True	Not present
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	4.0°C, 2.2°C, 4.0°C
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	SC
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	N/A	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	No analysis requiring residual chlorine check assigned.